Appl. No.	:	10/606,982	Confirmation No. 6440
Applicants	:	Lewis, Michael	
Filed	:	06/26/2003	
TC/A.U.:		3764	
Examiner	:	Demille, Danton	
Docket No.	:	244.002	
Customer No. :		9809	

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

CLAIMS

I CLAIM:

1. (Currently Amended) A cuff for use in counterpulsation treatment of a patient wherein pressure is applied to said patient's blood vessels to stimulate blood flow correlated with a patient's physiological rhythms based on data received from at least one physiological measuring device, comprising:

   a. a cuff to be received on a patient, said cuff having a first edge, a second edge, the third edge, a fourth edge, a top side and a bottom side, said cuff sized to fully encircle said patient such that said bottom side contacts said patient peripherally;

   b. said cuff having at least one electromechanical actuator integral to said cuff, said actuator being adjacent first edge and fixedly attached to said top side, said actuator being rigidly attached to an actuator extension, said actuator extension being attached to a tension attachment, said actuator being distant from said tension attachment, said tension attachment being rigidly attached to said cuff at said top side adjacent said second edge; said actuator being controllably operable to a plurality of positions;

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c. said plurality of positions being within a range of positions;

d. said range of positions ranging from an original position to a maximum constricted position;

e. said distance between said electromechanical actuator and said tension attachment in said original position being greater than said distance in said constricted position;

f. said cuff applying maximum positive pressure to said patient's blood vessels to constrict said blood vessels in said maximum constricted position of said plurality of positions of said actuator;

g. said cuff applying no pressure to said patient's blood vessels to constrict said blood vessels in said original position of said plurality of positions of said actuator;

h. said distance directly related to each position of said electromechanical actuator unit in said range of positions; and

i. said electromechanical actuator unit controllably operable from said relaxed position to any of said positions within said range of positions on activation.

2. (Original) The cuff as described in Claim 1 wherein said cuff is rectangular or trapezoidal in shape to accommodate increasing or decreasing thickness of patient extremities.

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3. (Original) The cuff as described in Claim 1 wherein said cuff further comprises a flexible bladder contiguous to said bottom side.

4. (Original) The device as in Claim 3, wherein each said actuator unit and each said extension attachment has a force distribution footing.

5. (Original) A device as in Claim 3, wherein said flexible surface layer is decreased in thickness at a stepped point along an entire width of one end forming an overlap section which continues until the surface layer becomes a tapered point; and wherein the entire width of an opposite end of said flexible surface layer defines an abrupt taper upward from a point beyond contact with the flexible bladder section.

6. (Original) The device as in Claim 3, wherein a sum thickness of the flexible surface layer, flexible bladder section, and flexible liner layer is between 0.1 and 3.0 inches at the thickest point.

7. (Original) The device as in Claim 3, wherein a cuff width is in the range of 1.0 and 20.0 inches.

8. (Original) The device as in Claim 3, wherein length of the cuff is in the range of 4.0 and 40.0 inches.

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9. (Original) The device as in Claim 3, wherein a diameter of an affixed actuator cuff as measured from said flexible liner layer is in the range of 1.0 and 12.0 inches.

10. (Original) The device as in Claim 3 wherein the flexible bladder section further comprises a plurality of bladder subsections with a plurality empty cavities between each said subsection.

11. (Original) The device as in Claim 1 wherein said cuff contains a pressure sensor.

12. (Withdrawn) A cuff for use in simultaneous pulsation or counterpulsation treatment of a patient wherein pressure is applied to said patient's blood vessels to stimulate blood flow, comprising:

a. a cuff to be received on a patient, said cuff having a first edge, a second edge, the third edge, a fourth edge, a top side and a bottom side, said cuff sized to fully encircle said patient such that said bottom side contacts said patient peripherally, said cuff forming a seal across said cuff at contact between said first edge and said second edge of said cuff, said bottom side of said cuff forming a seal to said patient at said third edge and fourth said edge;

b. said cuff having at least one electromechanical actuator integral to said cuff, said actuator being adjacent first edge and fixedly attached to said top side, said

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actuator being rigidly attached to a tension attachment, said actuator being distant from said tension attachment, said tension attachment being rigidly attached to said cuff at said top side adjacent said second edge; said actuator being controllably operable to a plurality of positions;

c. said plurality of positions being within a range of positions;

d. said range of positions ranging from a maximum expanded position to original position to a maximum constricted position;

e. said distance between said electromechanical actuator and said tension attachment in said original position being greater than said distance in said constricted position;

f. said cuff applying maximum positive pressure to said patient's blood vessels to constrict said blood vessels in said maximum constricted position of said plurality of positions of said actuator;

g. said cuff applying no pressure to said patient's blood vessels to constrict said blood vessels in said original position of said plurality of positions of said actuator;

h. said distance between said electromechanical actuator and said tension attachment in said original position being less than said distance in said expanded position;

i. said cuff applying maximum negative pressure to said patient's blood vessels to permit expansion of said blood vessels in said maximum expanded position of said plurality of positions of said actuator;

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j. said distance directly related to each position of said electromechanical actuator unit in said range of positions; and

k. said electromechanical actuator unit controllably operable from said relaxed position to any of said positions within said range of positions on activation.

13. (Withdrawn) The cuff as described in Claim 12 wherein said cuff is rectangular or trapezoidal in shape to accommodate increasing or decreasing thickness of patient extremities.

14. (Withdrawn) The cuff as described in Claim 13 wherein said cuff further comprises a flexible bladder contiguous to said bottom side.

15. (Withdrawn) The device as in Claim 14, wherein each said actuator unit and each said extension attachment has a force distribution footing.

16. (Withdrawn) A device as in Claim 14, wherein said flexible surface layer is decreased in thickness at a stepped point along an entire width of one end forming an overlap section which continues until the surface layer becomes a tapered point; and wherein the entire width of an opposite end of said flexible surface layer defines an abrupt taper upward from a point beyond contact with the flexible bladder section.

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17. (Withdrawn) The device as in Claim 14, wherein a sum thickness of the flexible surface layer, flexible bladder section, and flexible liner layer is between 0.1 and 3.0 inches at the thickest point.

18. (Withdrawn) The device as in Claim 14, wherein a cuff width is in the range of 1.0 and 20.0 inches.

19. (Withdrawn) The device as in Claim 14, wherein length of the cuff is in the range of 4.0 and 40.0 inches.

20. (Withdrawn) The device as in Claim 14, wherein a diameter of an affixed actuator cuff as measured from said flexible liner layer is in the range of 1.0 and 12.0 inches.

21. (Withdrawn) The device as in Claim 14 wherein the flexible bladder section further comprises a plurality of bladder subsections with a plurality empty cavities between each said subsection.

22. (Withdrawn) The device as in Claim 12 wherein said cuff contains a pressure sensor.

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23. (Currently Amended) A method of treating a medical condition using pulsation comprising the steps of:

a. applying a cuff to a patient,

said cuff having a first edge, a second edge, the third edge, a fourth edge, a top side and a bottom side, said cuff sized to fully encircle said patient such that said bottom side contacts said patient peripherally;

said cuff having at least one electromechanical actuator integral to said cuff, said actuator being adjacent first edge and fixedly attached to said top side, said actuator being rigidly attached to an actuator extension, said actuator extension being attached to a tension attachment, said actuator being distant from said tension attachment, said tension attachment being rigidly attached to said cuff at said top side adjacent said second edge; said actuator being controllably operable to a plurality of positions; said plurality of positions being within a range of positions;

said range of positions ranging from an original position to a maximum constricted position;

said distance between said electromechanical actuator and said tension attachment in said original position being greater than said distance in said constricted position;

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said cuff applying maximum positive pressure to said patient's blood vessels to constrict said blood vessels in said maximum constricted position of said plurality of positions of said actuator;

said cuff applying no pressure to said patient's blood vessels to constrict said blood vessels in said original position of said plurality of positions of said actuator;

said distance directly related to each position of said electromechanical actuator unit in said range of positions;

said electromechanical actuator unit controllably operable from said relaxed position to any of said positions within said range of positions on activation;

said cuff having an internal bladder which may be inflated to a desired volume to expand thickness of said cuff;

said bladder communicating with an external source of inflating liquid;

said bladder having a pressure relief valve;

said cuff having a pressure sensor for communicating with an external processor.

b. applying medical devices to said patient to detect physiological data;

c. detecting physiological data from said patient through use of said medical devices;

d. transmitting said physiological data electronically from said medical devices to a processor;

e. detecting said pressure data in said bladder;

f. transmitting said pressure data from said pressure sensor to a pressure data processor;

g. electronically processing said pressure data to determine and effect optimal pressure in said cuff;

h. inflating said bladder until desired pressure is obtained;

i. electronically processing said physiological data to determine when the patient's heart is in a diastolic or a systolic phase;

j. electronically timing said activation of each electromechanical cuff to correlate with the phases of the patient's heart;

l. modifying said pressure according to changes in said physiological data affected by said activation; and

k. modifying said timing of said activation of said plurality of electromechanical cuffs according to changes in said physiological data affected by said activation.

24. (Previously added) The device in Claim 1 wherein said pulsation comprises counterpulsation.

25. (Previously added) The device in Claim 1 wherein said pulsation comprises simultaneous pulsation.

26. (Previously added) The device in Claim 10 wherein said pulsation comprises counterpulsation.

27. (Previously added) The device in Claim 10 wherein said pulsation comprises simultaneous pulsation.

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28. (Previously added) The device in Claim 12 wherein said pulsation comprises counterpulsation.

29. (Previously added) The device in Claim 12 wherein said pulsation comprises simultaneous pulsation.

30. (Previously added) The device in Claim 25 wherein said pulsation comprises counterpulsation.

31. (Previously added) The device in Claim 25 wherein said pulsation comprises simultaneous pulsation.